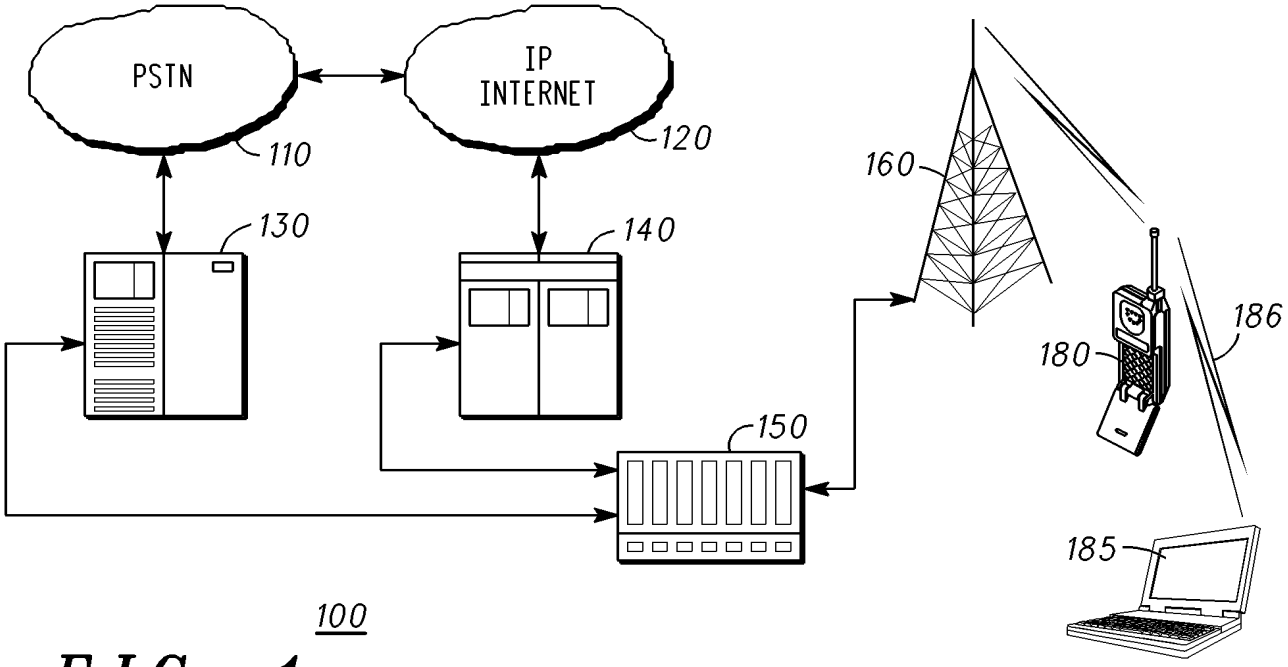
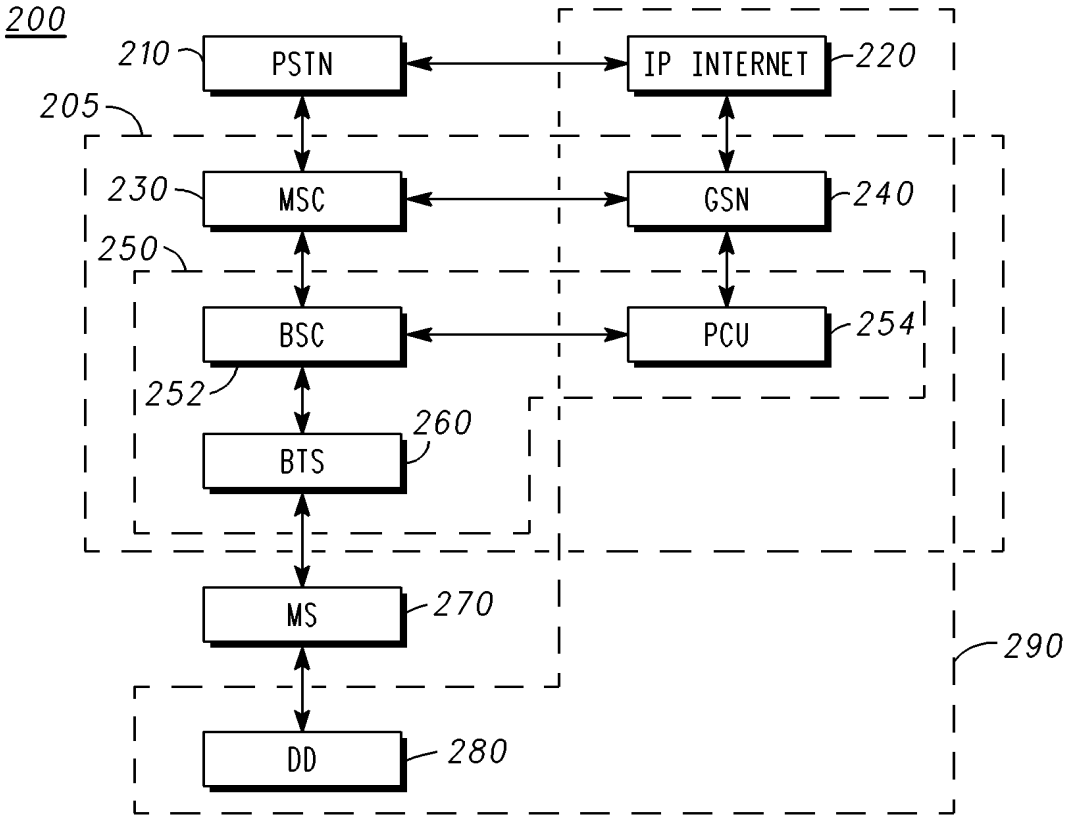

PSTN
IP
INTERNET
110
120
130
140
150
160
180
185
186
100

FIG. 1

FIG. 2


200
210
PSTN
IP INTERNET
220
205
230
MSC
GSN
240
250
BSC
PCU
254
252
260
BTS
MS
270
290
DD
280

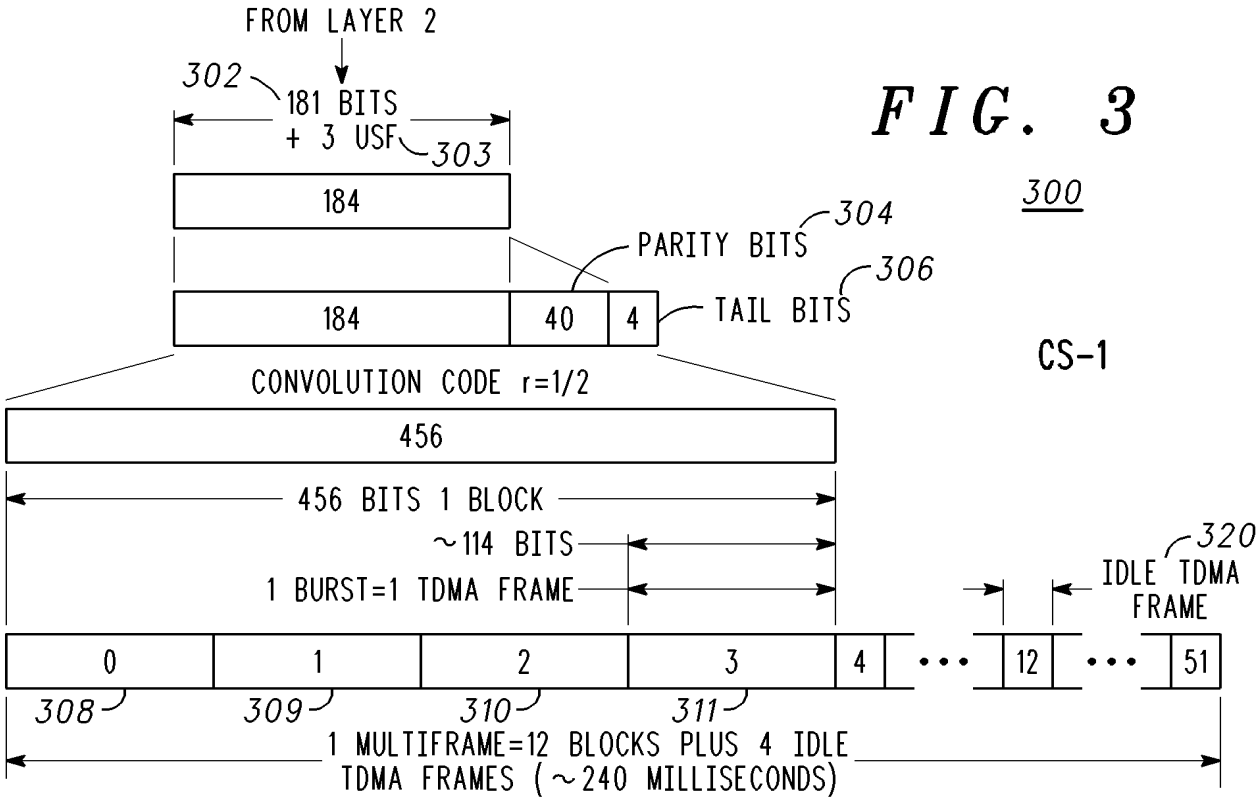

FROM LAYER 2
302
181 BITS
+ 3 USF
303
184
304
PARITY BITS
306
184
40
4
TAIL BITS
CS-1
300
CONVOLUTION CODE r=1/2
456
456 BITS 1 BLOCK
~114 BITS
1 BURST=1 TDMA FRAME
320
IDLE TDMA
FRAME
0
1
2
3
4
12
51
308
309
310
311
1 MULTIFRAME=12 BLOCKS PLUS 4 IDLE
TDMA FRAMES (~240 MILLISECONDS)

FIG. 3

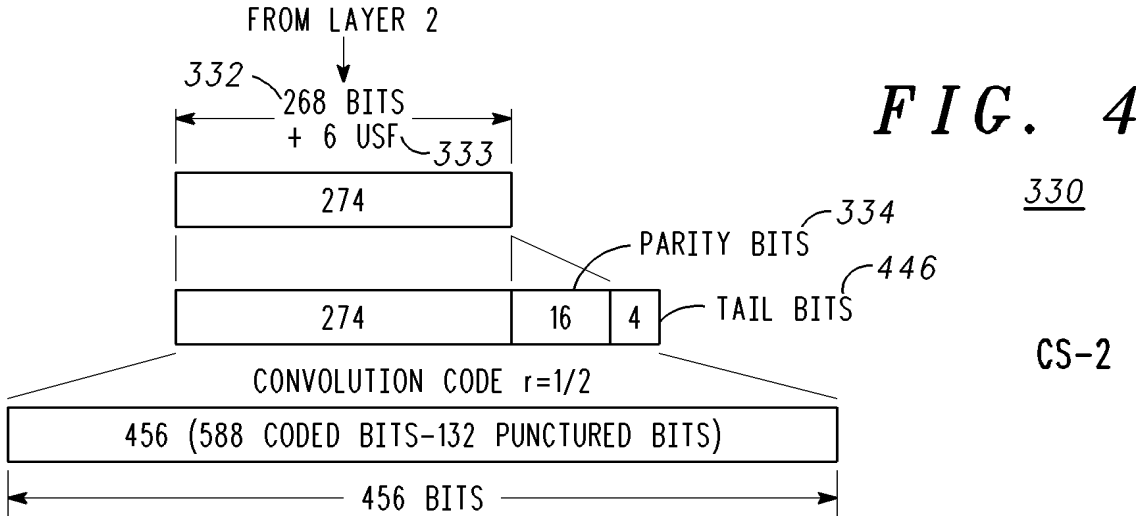

FROM LAYER 2
332
268 BITS
+ 6 USF
333
274
334
PARITY BITS
446
274
16
4
TAIL BITS
CS-2
330
CONVOLUTION CODE r=1/2
456 (588 CODED BITS-132 PUNCTURED BITS)
456 BITS

FIG. 4

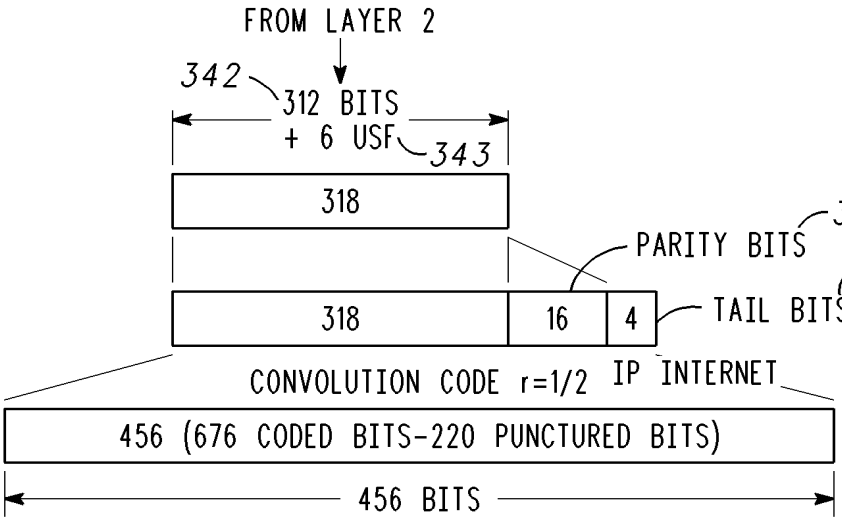


FIG. 5

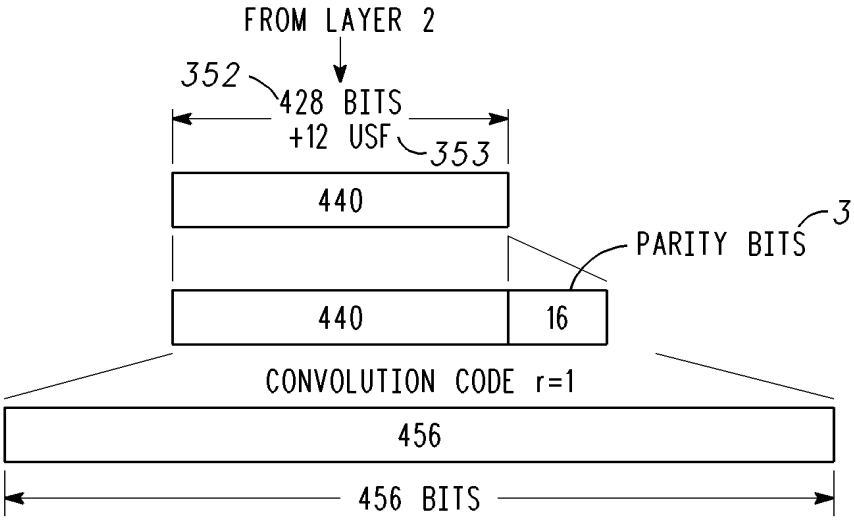


FIG. 6

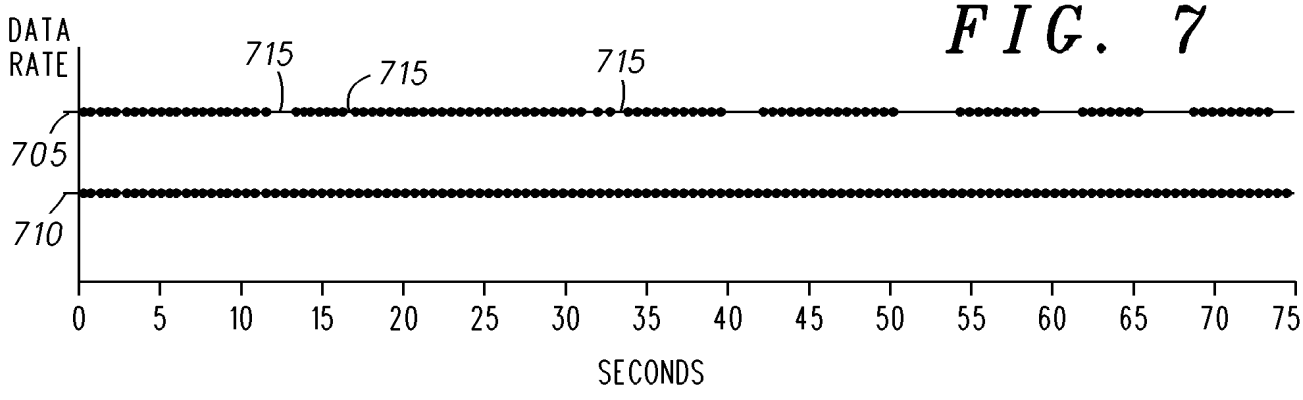


FIG. 7

FIG. 8

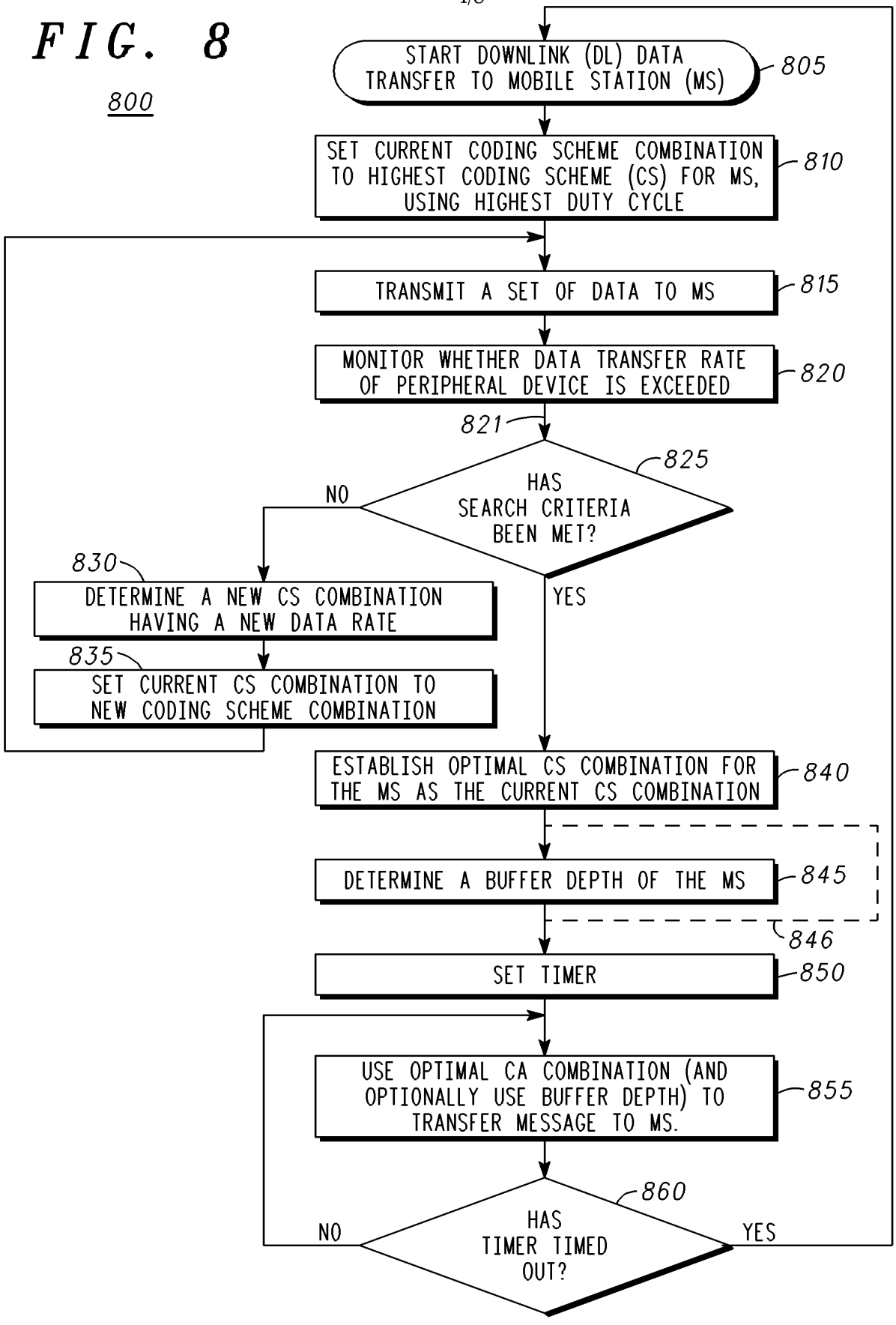

800
START DOWNLINK (DL) DATA TRANSFER TO MOBILE STATION (MS)
805
SET CURRENT CODING SCHEME COMBINATION TO HIGHEST CODING SCHEME (CS) FOR MS, USING HIGHEST DUTY CYCLE
810
TRANSMIT A SET OF DATA TO MS
815
MONITOR WHETHER DATA TRANSFER RATE OF PERIPHERAL DEVICE IS EXCEEDED
820
821
HAS SEARCH CRITERIA BEEN MET?
825
NO
YES
DETERMINE A NEW CS COMBINATION HAVING A NEW DATA RATE
830
SET CURRENT CS COMBINATION TO NEW CODING SCHEME COMBINATION
835
ESTABLISH OPTIMAL CS COMBINATION FOR THE MS AS THE CURRENT CS COMBINATION
840
DETERMINE A BUFFER DEPTH OF THE MS
845
846
SET TIMER
850
USE OPTIMAL CA COMBINATION (AND OPTIONALLY USE BUFFER DEPTH) TO TRANSFER MESSAGE TO MS.
855
HAS TIMER TIMED OUT?
860
NO
YES

FIG. 9

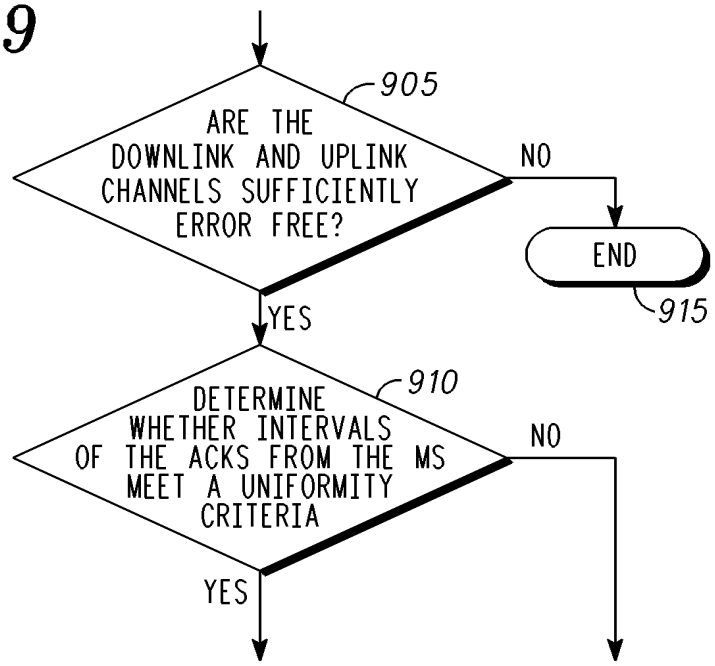
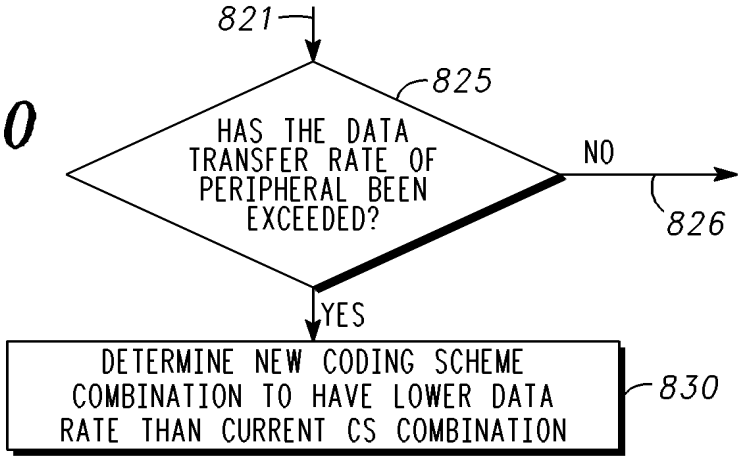

820
905
ARE THE DOWNLINK AND UPLINK CHANNELS SUFFICIENTLY ERROR FREE?
NO
END
915
YES
910
DETERMINE WHETHER INTERVALS OF THE ACKS FROM THE MS MEET A UNIFORMITY CRITERIA
NO
YES

FIG. 10


821
825
HAS THE DATA TRANSFER RATE OF PERIPHERAL BEEN EXCEEDED?
NO
826
YES
DETERMINE NEW CODING SCHEME COMBINATION TO HAVE LOWER DATA RATE THAN CURRENT CS COMBINATION
830

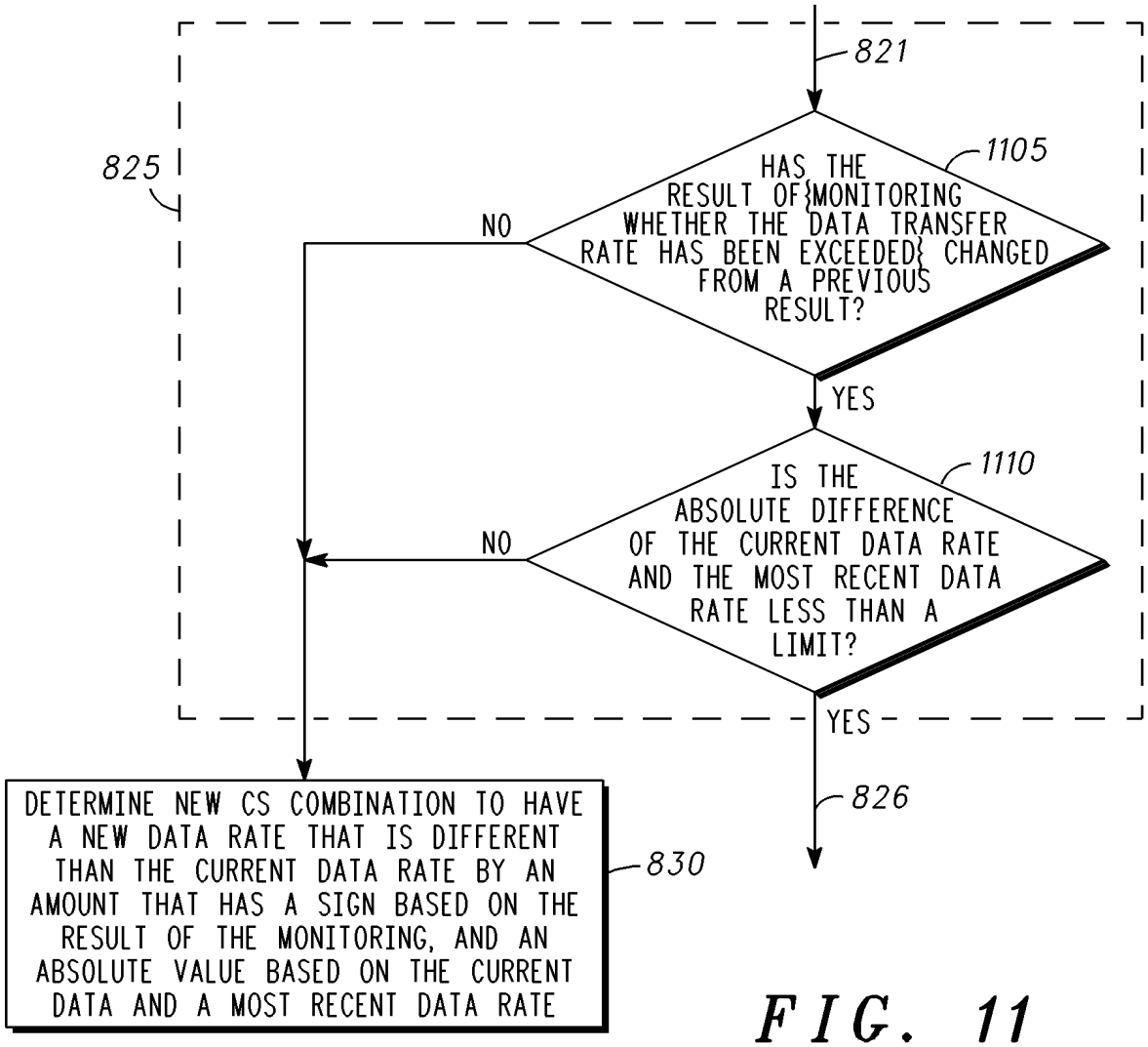
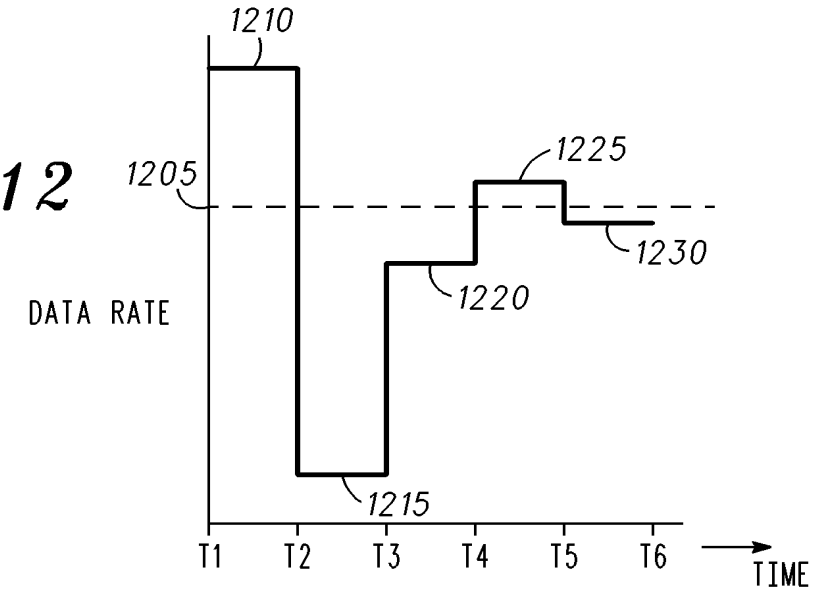

821
825
1105
HAS THE RESULT OF {MONITORING WHETHER THE DATA TRANSFER RATE HAS BEEN EXCEEDED} CHANGED FROM A PREVIOUS RESULT?
NO
YES
1110
IS THE ABSOLUTE DIFFERENCE OF THE CURRENT DATA RATE AND THE MOST RECENT DATA RATE LESS THAN A LIMIT?
NO
YES
826
DETERMINE NEW CS COMBINATION TO HAVE A NEW DATA RATE THAT IS DIFFERENT THAN THE CURRENT DATA RATE BY AN AMOUNT THAT HAS A SIGN BASED ON THE RESULT OF THE MONITORING, AND AN ABSOLUTE VALUE BASED ON THE CURRENT DATA AND A MOST RECENT DATA RATE
830

FIG. 11

FIG. 12


1210
1205
1225
1230
1220
1215
DATA RATE
T1
T2
T3
T4
T5
T6
TIME

845

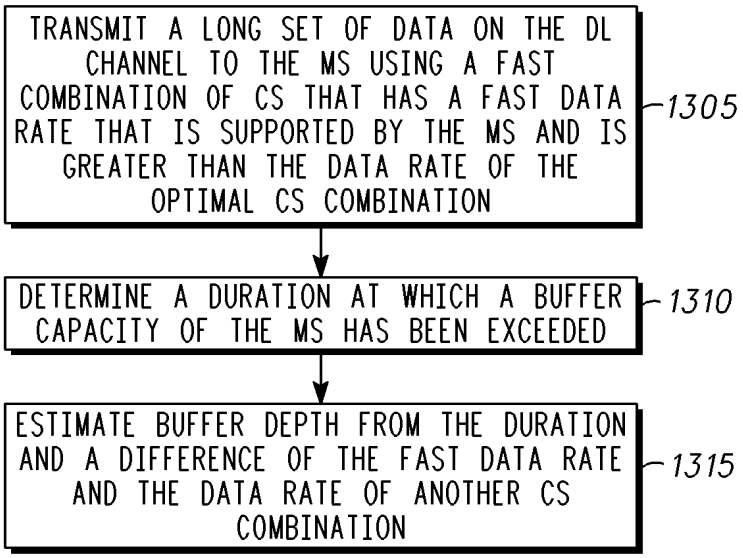


FIG. 13

855

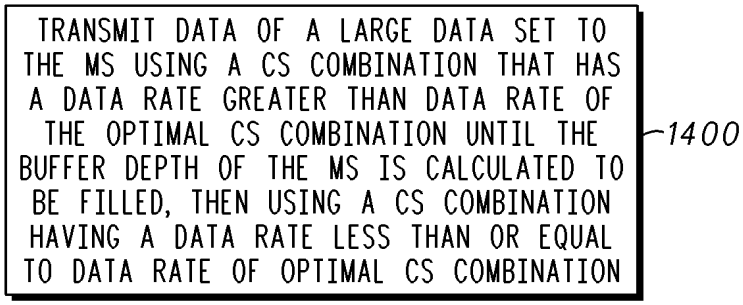


FIG. 14

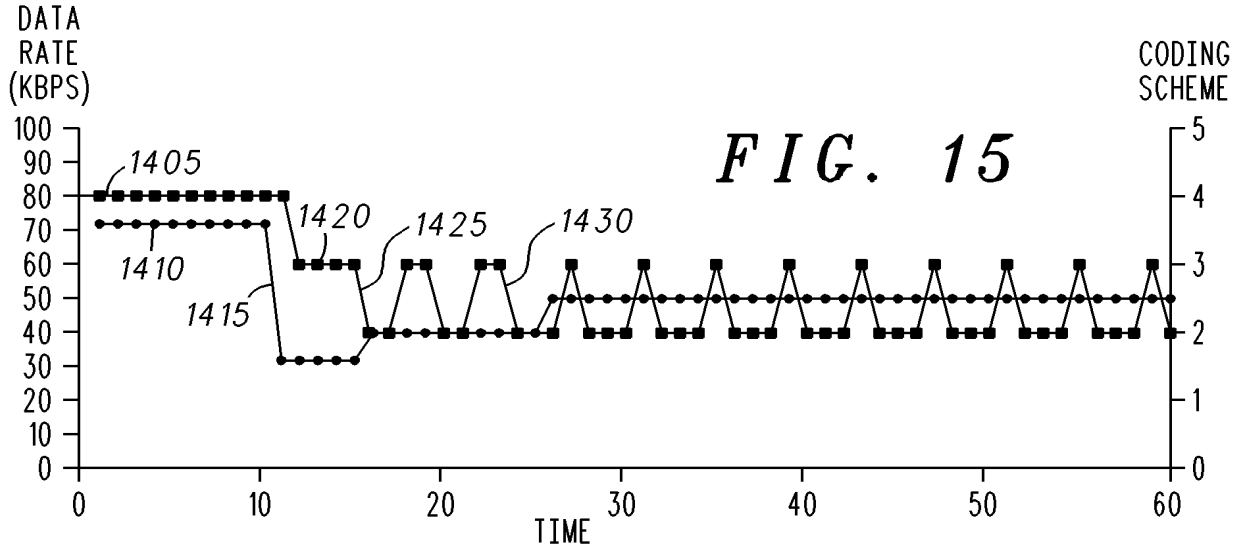


FIG. 15

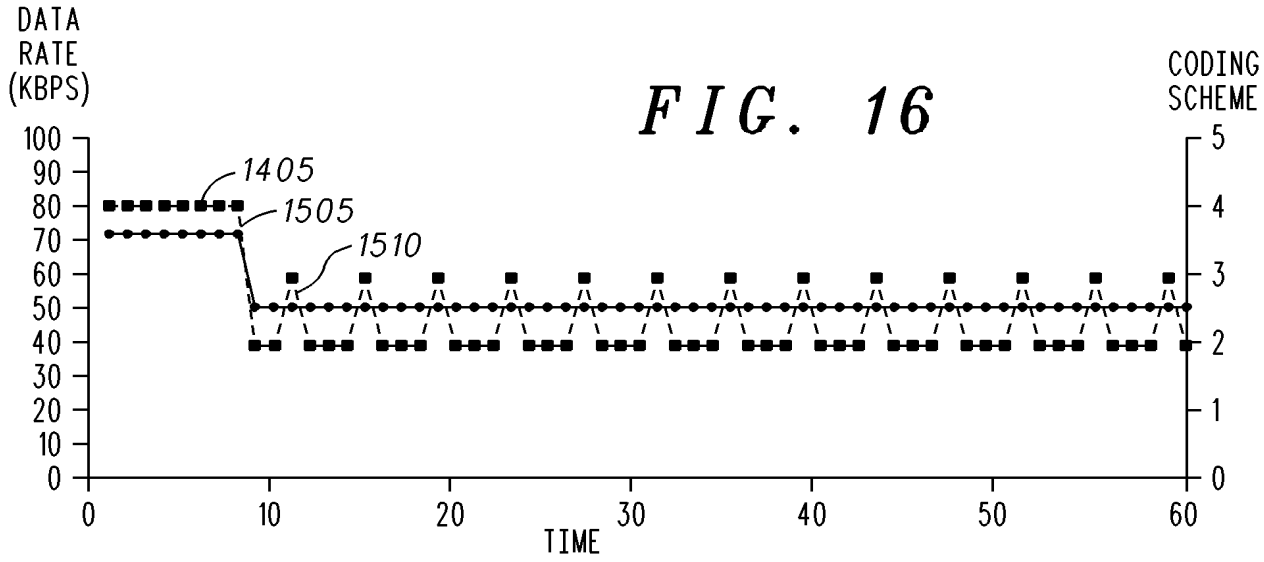

DATA RATE (KBPS)
CODING SCHEME
100
90
80
70
60
50
40
30
20
10
0
5
4
3
2
1
0
0
10
20
30
40
50
60
TIME
1405
1505
1510

FIG. 16